

**Working Voltage: 10 to 78 V**  
**Peak Pulse Power: 1500 W**

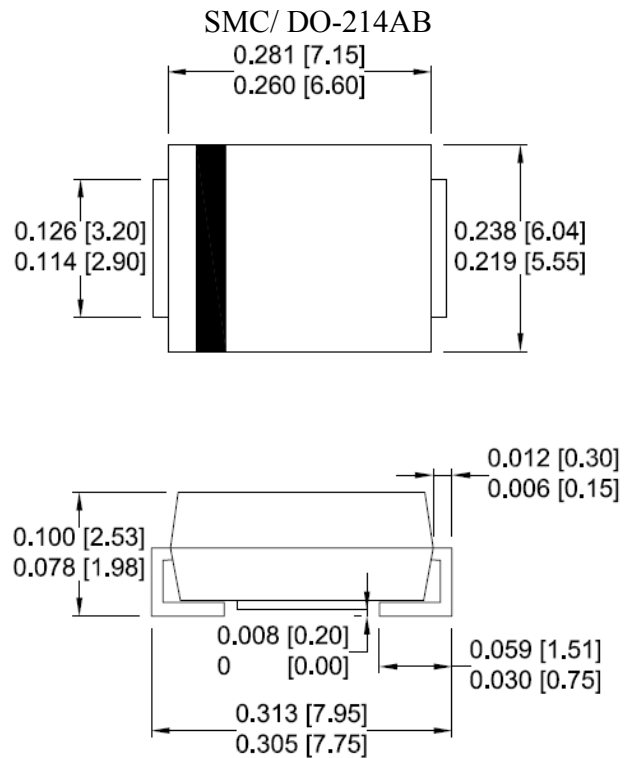
## Surface Mount Transient Voltage Suppressors

### Features

- Glass passivated chip
- 1500 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01 %
- High reliability application and automotive grade AEC Q101 qualified
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

### Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



Dimensions: inch[mm]

### Maximum Ratings( $T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter   | Symbol         | Value          | Unit             |
|---|----------------|----------------|------------------|
| Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>                       | $P_{PP}$       | 1500           | W                |
| Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>                           | $I_{PP}$       | See Next Table | A                |
| Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$                          | $P_D$          | 6.5            | W                |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup> | $I_{FSM}$      | 200            | A                |
| Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(3)</sup>       | $V_F$          | 3.5/5.0        | V                |
| Operating junction and storage temperature range  | $T_J, T_{STG}$ | - 55 to +150   | $^\circ\text{C}$ |

**Note:**

(1)Non-repetitive current pulse per Fig.5 and derated above  $T_A = 25^\circ\text{C}$  per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F < 3.5\text{V}$  for devices of  $V_{BR} < 200\text{V}$  and  $V_F < 5.0\text{V}$  for devices of  $V_{BR} > 201\text{V}$



Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

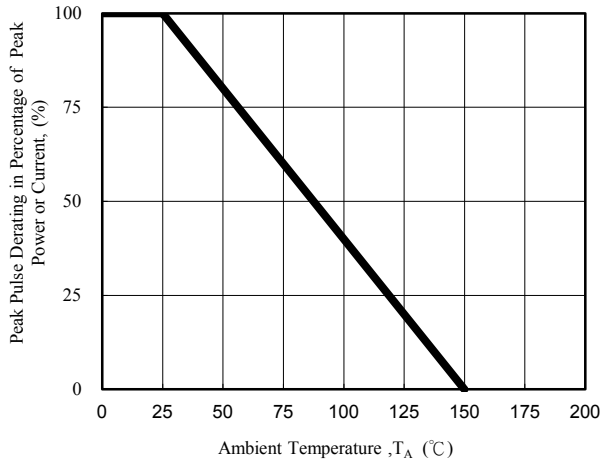


Fig. 1 - Pulse Derating Curve

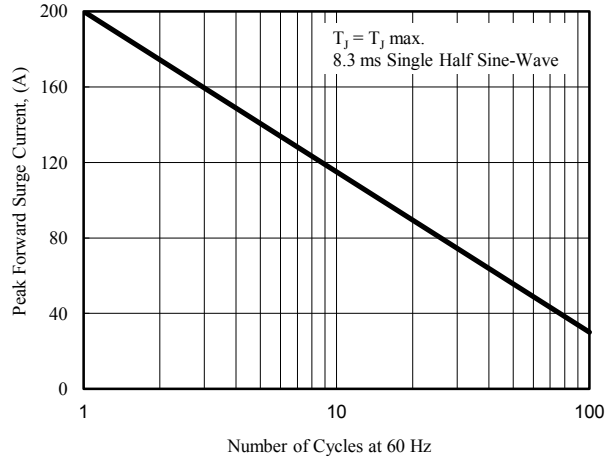


Fig. 2 - Maximum Non-Repetitive Surge Current

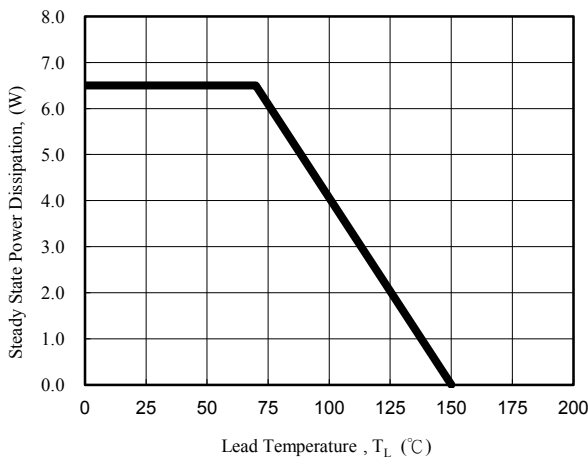


Fig. 3 - Steady State Power Derating Curve

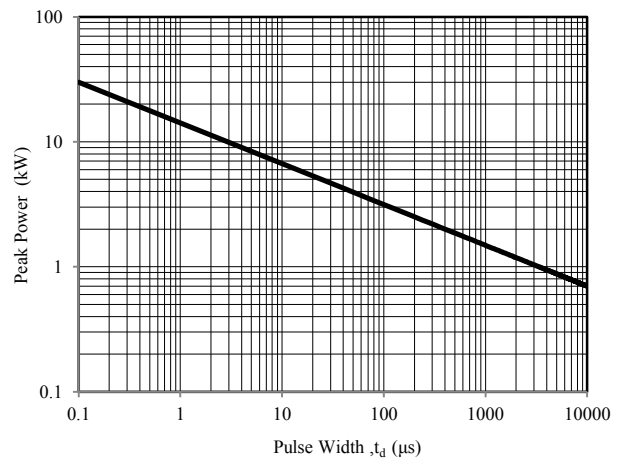


Fig. 4 - Peak Pulse Power Rating Curve

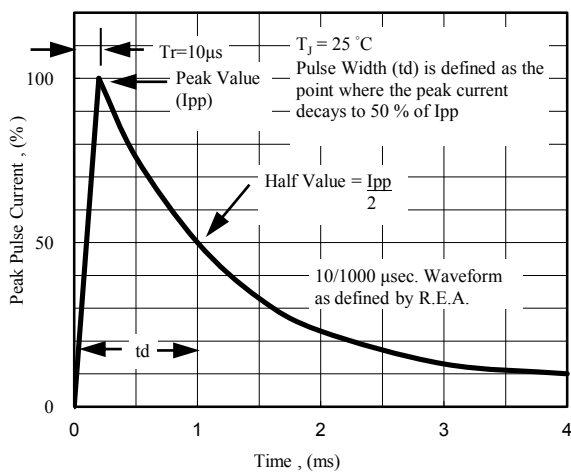


Fig. 5 - Pulse Waveform

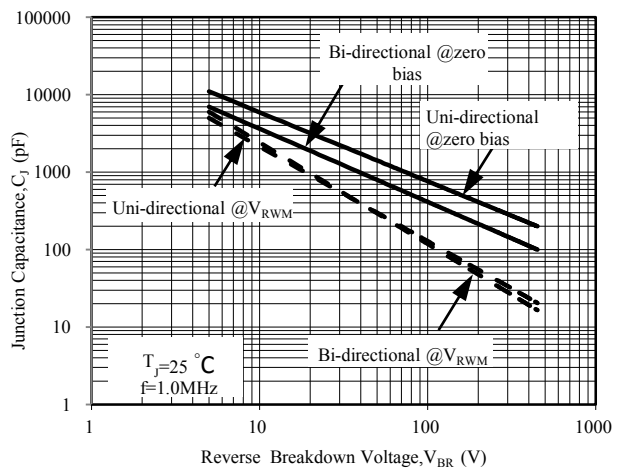


Fig. 6 - Typical Junction Capacitance

**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

| Part Number<br>(Uni) | Part Number<br>(Bi) | Device Marking Code |      | Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub> |         |                     | Maximum Reverse Leakage<br>I <sub>R</sub> @V <sub>RWM</sub><br>(uA) | Working Peak Reverse Voltage<br>V <sub>RWM</sub><br>(V) | Maximum Reverse Surge Current I <sub>PP</sub><br>(A) | Maximum Clamping Voltage<br>V <sub>C</sub> @I <sub>PP</sub><br>(V) |
|----------------------|---------------------|---------------------|------|---|---------|---------------------|---|---|--|--|
|                      |                     | Uni                 | Bi   | Min (V)   | Max (V) | I <sub>T</sub> (mA) |   |   |  |  |
| TPSMCJ10A            | TPSMCJ10CA          | GDXA                | BDXA | 11.10   | 12.30   | 1                   | 5   | 10.0  | 88.24  | 17.0   |
| TPSMCJ11A            | TPSMCJ11CA          | GDZA                | BDZA | 12.20   | 13.50   | 1                   | 1   | 11.0  | 82.42  | 18.2   |
| TPSMCJ12A            | TPSMCJ12CA          | GEEA                | BEEA | 13.30   | 14.70   | 1                   | 1   | 12.0  | 75.38  | 19.9   |
| TPSMCJ13A            | TPSMCJ13CA          | GEGA                | BEGA | 14.40   | 15.90   | 1                   | 1   | 13.0  | 69.77  | 21.5   |
| TPSMCJ14A            | TPSMCJ14CA          | GEKA                | BEKA | 15.60   | 17.20   | 1                   | 1   | 14.0  | 64.66  | 23.2   |
| TPSMCJ15A            | TPSMCJ15CA          | GEMA                | BEMA | 16.70   | 18.50   | 1                   | 1   | 15.0  | 61.48  | 24.4   |
| TPSMCJ16A            | TPSMCJ16CA          | GEPA                | BEPA | 17.80   | 19.70   | 1                   | 1   | 16.0  | 57.69  | 26.0   |
| TPSMCJ17A            | TPSMCJ17CA          | GERA                | BERA | 18.90   | 20.90   | 1                   | 1   | 17.0  | 54.35  | 27.6   |
| TPSMCJ18A            | TPSMCJ18CA          | GETA                | BETA | 20.00   | 22.10   | 1                   | 1   | 18.0  | 51.37  | 29.2   |
| TPSMCJ19A            | TPSMCJ19CA          | GEBA                | BEBA | 21.10   | 23.30   | 1                   | 1   | 19.0  | 48.73  | 30.8   |
| TPSMCJ20A            | TPSMCJ20CA          | GEVA                | BEVA | 22.20   | 24.50   | 1                   | 1   | 20.0  | 46.30  | 32.4   |
| TPSMCJ22A            | TPSMCJ22CA          | GEZA                | BEXA | 24.40   | 26.90   | 1                   | 1   | 22.0  | 42.25  | 35.5   |
| TPSMCJ24A            | TPSMCJ24CA          | GEZA                | BEZA | 26.70   | 29.50   | 1                   | 1   | 24.0  | 38.56  | 38.9   |
| TPSMCJ26A            | TPSMCJ26CA          | GFEA                | BFEA | 28.90   | 31.90   | 1                   | 1   | 26.0  | 35.63  | 42.1   |
| TPSMCJ28A            | TPSMCJ28CA          | GFGA                | BFGA | 31.10   | 34.40   | 1                   | 1   | 28.0  | 33.04  | 45.4   |
| TPSMCJ30A            | TPSMCJ30CA          | GFKA                | BFKA | 33.30   | 36.80   | 1                   | 1   | 30.0  | 30.99  | 48.4   |
| TPSMCJ33A            | TPSMCJ33CA          | GFMA                | BFMA | 36.70   | 40.60   | 1                   | 1   | 33.0  | 28.14  | 53.3   |
| TPSMCJ36A            | TPSMCJ36CA          | GFPA                | BFPA | 40.00   | 44.20   | 1                   | 1   | 36.0  | 25.82  | 58.1   |
| TPSMCJ40A            | TPSMCJ40CA          | GFRA                | BFRA | 44.40   | 49.10   | 1                   | 1   | 40.0  | 23.26  | 64.5   |
| TPSMCJ43A            | TPSMCJ43CA          | GFTA                | BFTA | 47.80   | 52.80   | 1                   | 1   | 43.0  | 21.61  | 69.4   |
| TPSMCJ45A            | TPSMCJ45CA          | GFVA                | BFVA | 50.00   | 55.30   | 1                   | 1   | 45.0  | 20.63  | 72.7   |
| TPSMCJ48A            | TPSMCJ48CA          | GFXA                | BFXA | 53.30   | 58.90   | 1                   | 1   | 48.0  | 19.38  | 77.4   |
| TPSMCJ51A            | TPSMCJ51CA          | GFZA                | BFZA | 56.70   | 62.70   | 1                   | 1   | 51.0  | 18.20  | 82.4   |
| TPSMCJ54A            | TPSMCJ54CA          | GGEA                | BGEA | 60.00   | 66.30   | 1                   | 1   | 54.0  | 17.22  | 87.1   |
| TPSMCJ58A            | TPSMCJ58CA          | GGGA                | BGGA | 64.40   | 71.20   | 1                   | 1   | 58.0  | 16.03  | 93.6   |
| TPSMCJ60A            | TPSMCJ60CA          | GGKA                | BGKA | 66.70   | 73.70   | 1                   | 1   | 60.0  | 15.50  | 96.8   |
| TPSMCJ64A            | TPSMCJ64CA          | GGMA                | BGMA | 71.10   | 78.60   | 1                   | 1   | 64.0  | 14.56  | 103.0  |
| TPSMCJ70A            | TPSMCJ70CA          | GGPA                | BGPA | 77.80   | 86.00   | 1                   | 1   | 70.0  | 13.27  | 113.0  |
| TPSMCJ75A            | TPSMCJ75CA          | GGRA                | BGRA | 83.30   | 92.10   | 1                   | 1   | 75.0  | 12.40  | 121.0  |
| TPSMCJ78A            | TPSMCJ78CA          | GGTA                | BGTA | 86.70   | 95.80   | 1                   | 1   | 78.0  | 11.90  | 126.0  |

**Note:**

1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
2. For Bi-Directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limit is double